

IN THE CLAIMS:

1. (Original) A life signs detection system for monitoring subjects, said system comprising a plurality of wearable platforms, each wearable platform comprising
 - a sensor subsystem having a respiration rate sensor that detects abdominal motion of a subject
 - a processor, and
 - a transmitter for local sensor data of medical state information, a plurality of local hubs each comprising
 - a separate wearable package comprising
 - a local transceiver hub accepting connection from an external display and comprising
 - a receiver for local sensor data from said wearable platforms,
 - a remote base station receiving information from a plurality of local hubs and comprising said external display, and a rule processing engine comprising
 - a processor executing a health state assessment algorithm that performs a medical evaluation and determines a confidence level for the evaluation, said algorithm comprising a rule set to calculate a health state classification and indicator of confidence.
2. (Original) The life signs detection system of claim 1 wherein the processing engine employs a subject personal baseline dependent rule set and tabulated parameter values.
3. (Original) The life signs detection system of claim 1 wherein the transmitter of the wearable platform is a short range RF transmitter having low bandwidth output for local sensor data.
4. (Original) The life signs detection system of claim 1 wherein the local transceiver hub comprises a short range RF transceiver, a medium or long range transmitter/transceiver and a processor.

5. (Original) The life signs detection system of claim 1 wherein said local sensor data comprises periodic and on demand digital data packets of medical state information from said wearable platforms.

6. (Original) The life signs detection system of claim 1 wherein said remote base station is a PDA.

7. (Currently Amended) The life signs detection system of claim 1 wherein said algorithm estimates the likelihood of injury[.],

8. (Original) The life signs detection system of claim 1 wherein said algorithm estimates the likelihood of an injury and the nature of the injury.

9. (Original) The life signs detection system of claim 1 wherein the processing engine employs a subject personal baseline dependent rule set.

10. (Original) The life signs detection system of claim 1 wherein said display comprises color coded health state classifications and decision confidence score.

11 – 43. (Cancelled)

44. (Original) A life signs detection system for monitoring one significant vital sign and one indirect life sign of subjects, said system comprising

a plurality of wearable platforms, each wearable platform comprising

a sensor subsystem comprising

a heart rate sensor,

a body motion sensor a respiration rate sensor, and

a temperature sensor,

wherein the respiration rate sensor detects motion of a subject,

a processor, and

a transmitter for local sensor data of medical state information,

a plurality of local hubs each comprising

a separate wearable package comprising

- a local transceiver hub accepting connection from an external display and comprising
- a receiver for local sensor data from said wearable platforms,

a remote base station receiving information from a plurality of local hubs and comprising said external display, and

a rule processing engine comprising

- a processor executing a health state assessment algorithm that performs a medical evaluation and determines a confidence level for the evaluation, said algorithm comprising a rule set to calculate a health state classification and indicator of confidence.

45. (Original) The life signs detection system of claim 44 wherein the processing engine employs a subject personal baseline dependent rule set and tabulated parameter values.

46. (Original) The life signs detection system of claim 44 wherein the respiration rate sensor detects abdominal motion of the subject.

47. (Original) The life signs detection system of claim 44 wherein said algorithm comprises tabulated interpretation rules and tabulated boundary conditions and tabulated abnormal values for each personal baseline.

48. (Original) The life signs detection system of claim 44 wherein the transmitter of the wearable platform is a short range RF transmitter having low bandwidth output for local sensor data.

49. (Original) The life signs detection system of claim 44 wherein the local transceiver hub comprises a short range RF transceiver, a medium or long range transmitter/transceiver and a processor.

50. (Original) The life signs detection system of claim 44 wherein said local sensor data comprises periodic and on demand digital data packets of medical state information from said wearable platforms.

51. (Original) The life signs detection system of claim 44 wherein said remote base station is a PDA.

52. (Original) The life signs detection system of claim 44 wherein said algorithm estimates the likelihood of injury.

53. (Original) The life signs detection system of claim 44 wherein said algorithm estimates the likelihood of an injury and the nature of the injury.

54. (Original) The life signs detection system of claim 44 wherein the processing engine employs a subject personal baseline dependent rule set.

55. (Original) The life signs detection system of claim 44 wherein said display comprises color coded health state classifications and decision confidence score.

56 – 92. (Cancelled)

93. (Original) A system for processing information on the physical status of one or more subjects comprising

apparatus for transmitting information comprising

a carrier for sensors arranged to be worn by the subjects for providing electrical signals including amplitude and duration values representative of physical parameters of the subjects, and

a host receiver having a processor that determines whether the amplitude and duration values fall within acceptable limits.

94. (Original) The system for processing information on the physical status of one or more subjects of claim 93, having a communications protocol that assigns a set of sensors to a single hub, and a set of hubs to a single remote station.

95. (Original) The system for processing information on the physical status of one or more subjects of claim 94, wherein a local protocol provides the transport of data between one or more sensors and a single hub.
96. (Original) The system for processing information on the physical status of one or more subjects of claim 95, said system comprising a plurality of sensors, and wherein a local data packet format is extensible, not requiring changes to the hub to accommodate new sensor additions.
97. (Original) The system for processing information on the physical status of one or more subjects of claim 96, wherein gaps in the sensor data are accounted for by providing a filler packet, or by the indication that the sensor is no longer communicating.
98. (Original) The system for processing information on the physical status of one or more subjects of claim 96, wherein the filler packet comprises a timestamp.
99. (Original) The system for processing information on the physical status of one or more subjects of claim 98, wherein a distant protocol provides the transport of data between a hub, and the remote station.
100. (Original) The system for processing information on the physical status of one or more subjects of claim 99, wherein the distant protocol allows for interruptions in the data stream, with later recovery of data stored within the hub.
101. (Original) The system for processing information on the physical status of one or more subjects of claim 100, wherein the host receiver is comprised within a hub system that has a user interface that provides a local health display, wherein the host receiver further comprises a local selection mechanism to facilitate the initial association of one or more sensors to a specific hub.

102. (Original) The system for processing information on the physical status of one or more subjects of claim 93, wherein the association of a specific hub to a remote station is performed at the hub, or via a remote communications link, either to a medic PDA, or back to a remote station.

103. (Original) The system for processing information on the physical status of one or more subjects of claim 102 wherein the remote subsystem has a user interface that displays the-basic status of multiple hubs within a single display.

104. (Original) The system for processing information on the physical status of one or more subjects of claim 103, further comprising a display of status and data details from at least a single hub.

105. (Original) The system for processing information on the physical status of one or more subjects of claim 103, further comprising a medic PDA subsystem that has a user interface for displaying a list of hubs to connect to, and a mechanism to connect and display the detailed data as delivered by the hub.

106. (Original) The system for processing information on the physical status of one or more subjects of claim 93, wherein a running average of the amplitude and duration values of a group of previous respiration cycles is transmitted to the host processor, wherein a small hysteresis value is applied to the respiration signal to minimize false"end of cycle"readings due to noise in the signal, and wherein said hysteresis value is dynamically adjusted based on the amplitude of the previous cycle.

107 – 110. (Cancelled)

111. (Original) A method for transmitting information on the physical status of a subject comprising running an algorithm comprising the steps of

looking for a new trend by

looking at four most recent inter-beat intervals and

developing a scoring based on the consistency of these intervals.

112. (Original) The method for transmitting information on the physical status of a subject of claim 111, further comprising using a window size $\pm 12.5\%$.

113. (Original) The method for transmitting information on the physical status of a subject of claim 111, wherein only consistent inter-beat intervals are saved in a history array.

114. (Original) The method for transmitting information on the physical status of a subject of claim 111, wherein an existing trend is tracked by

assuming the heart rate to be at a certain frequency, and
looking for more heartbeats at these expected intervals,
ignoring extra pulses are ignored
inserting missing pulses.

115. (Original) The method for transmitting information on the physical status of a subject of claim 111, wherein an existing trend process is locked onto a new trend when that new trend is seen to be strong and stable comprising

maintaining a score for how well the trend is being tracked.
unlocking the existing trend when its score is low, and then
locking onto a new trend when the new trend is seen to exist.

116. (Original) The method for transmitting information on the physical status of a subject of claim 115, wherein an array of inter-beat intervals is maintained in order to provide the averaging process the information it needs.

117. (Original) The method for transmitting information on the physical status of a subject of claim 115, wherein if both the trend the trend tracking and acquisition processes have low scores, the heart rate status is set to "unstable".

118. (Original) The method for transmitting information on the physical status of a subject of claim 115, wherein if there are no heartbeats but the EKG contacts are determined to be on-body, then the heart rate status is set to indicate "none".

119. (Original) The method for transmitting information on the physical status of a subject of claim 115, wherein an averaging filter looks back in time through an array of historic inter-beat intervals until it sees at least 4 seconds of pulse timing, and then averages this most recent pulse timing.

120. (Original) The method for transmitting information on the physical status of a subject of claim 115, wherein a low pass filter stage limits how fast the heart rate can change, wherein, the rate at which the reported heart rate is allowed to approach the calculated heart rate based on the old and new trends is limited to 4 BPM per second.

121 – 138. (Cancelled)

139. (Original) A system for processing information on the physical status of one or more subjects comprising

a sensor in carrier for sensors that communicates wirelessly with a health hub comprising a device having a processor.

140. (Original) The system for processing information on the physical status of one or more subjects of claim 139, further comprising a RF transceiver operating at the same frequency at both ends of the wireless link sending Manchester encoded data.

141. (Original) The system for processing information on the physical status of one or more subjects of claim 139, wherein the information is sent in packets with error correction bits.

142 – 148. (Cancelled)